

FIG. 1

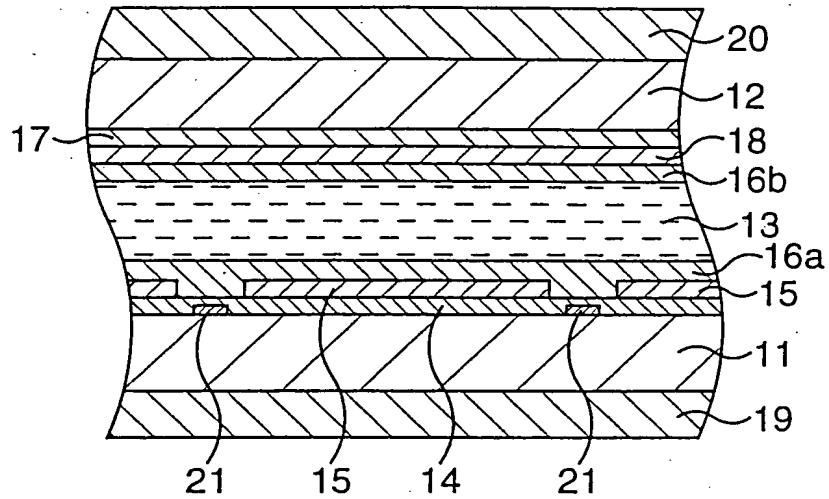


FIG. 2A

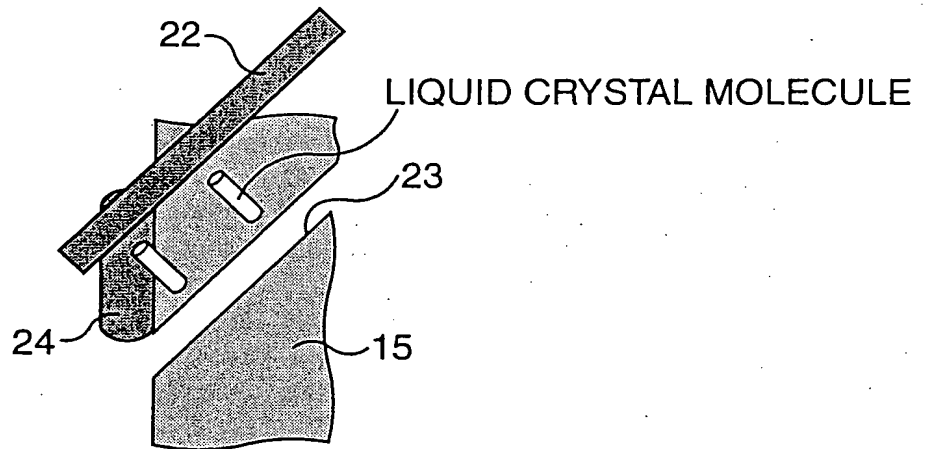


FIG. 2B

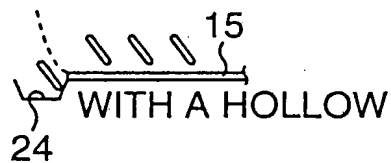


FIG. 2C

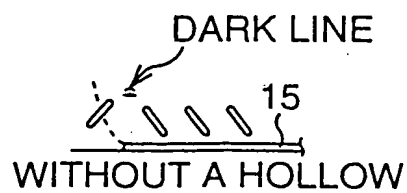
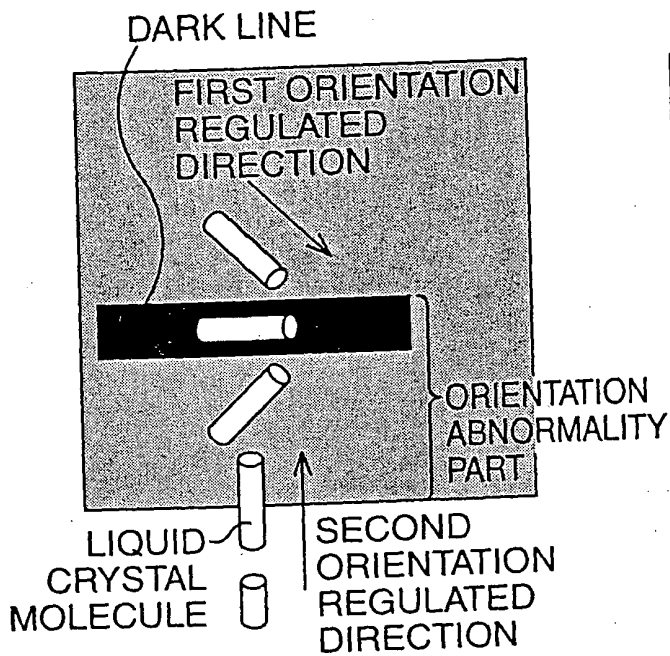
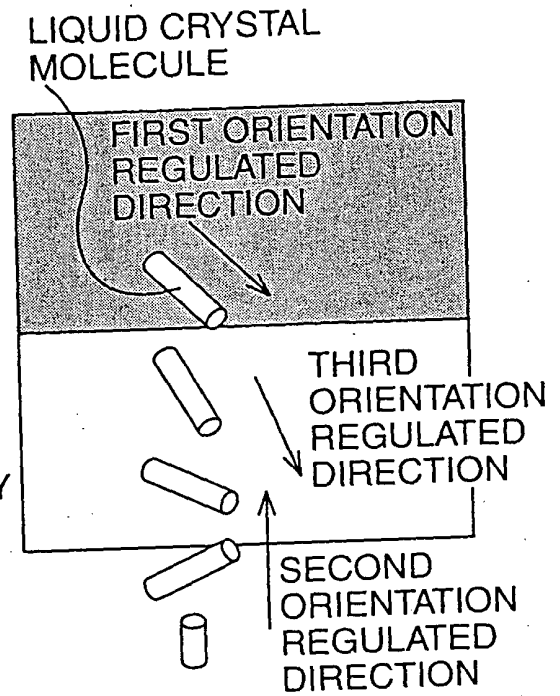


FIG. 3A



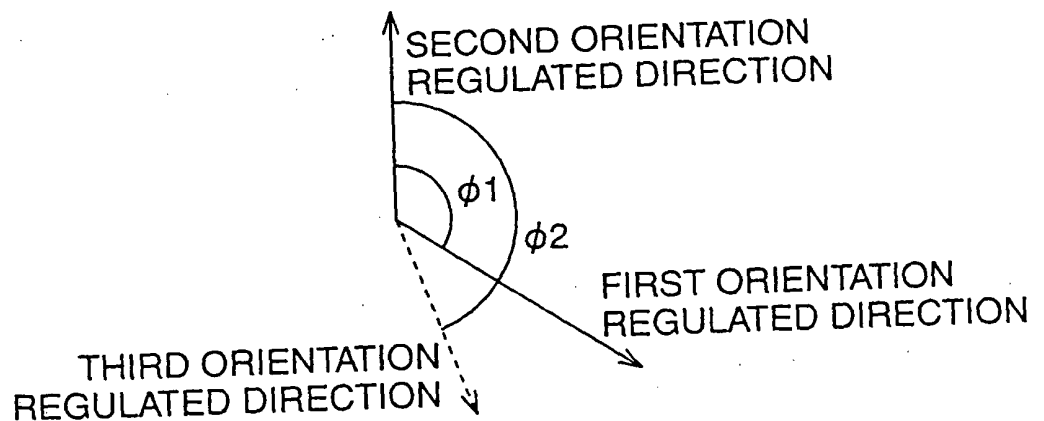
CONVENTIONAL

FIG. 3B



GIVE A THIRD REGULATING FORCE

FIG. 3C



RELATION BETWEEN DIRECTIONS OF
 ALIGNING FORCE AND ANGLES

FIG. 4

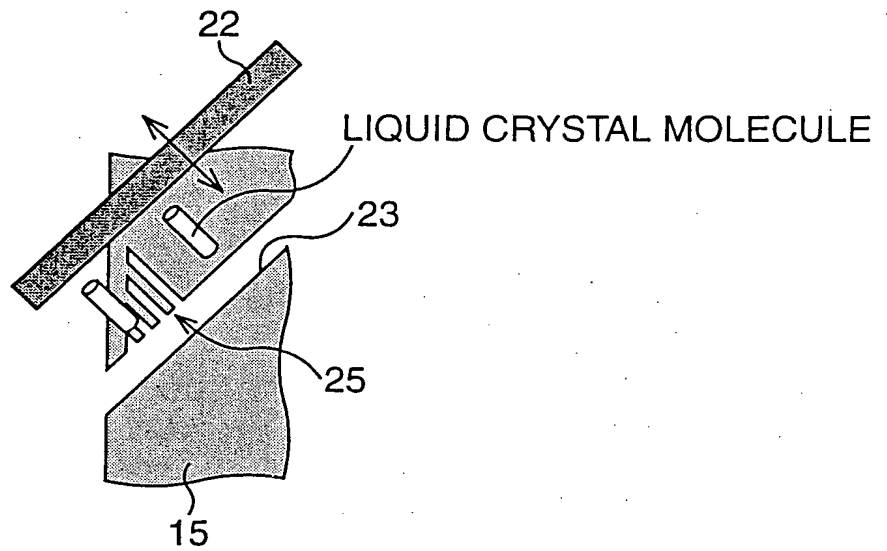


FIG. 5

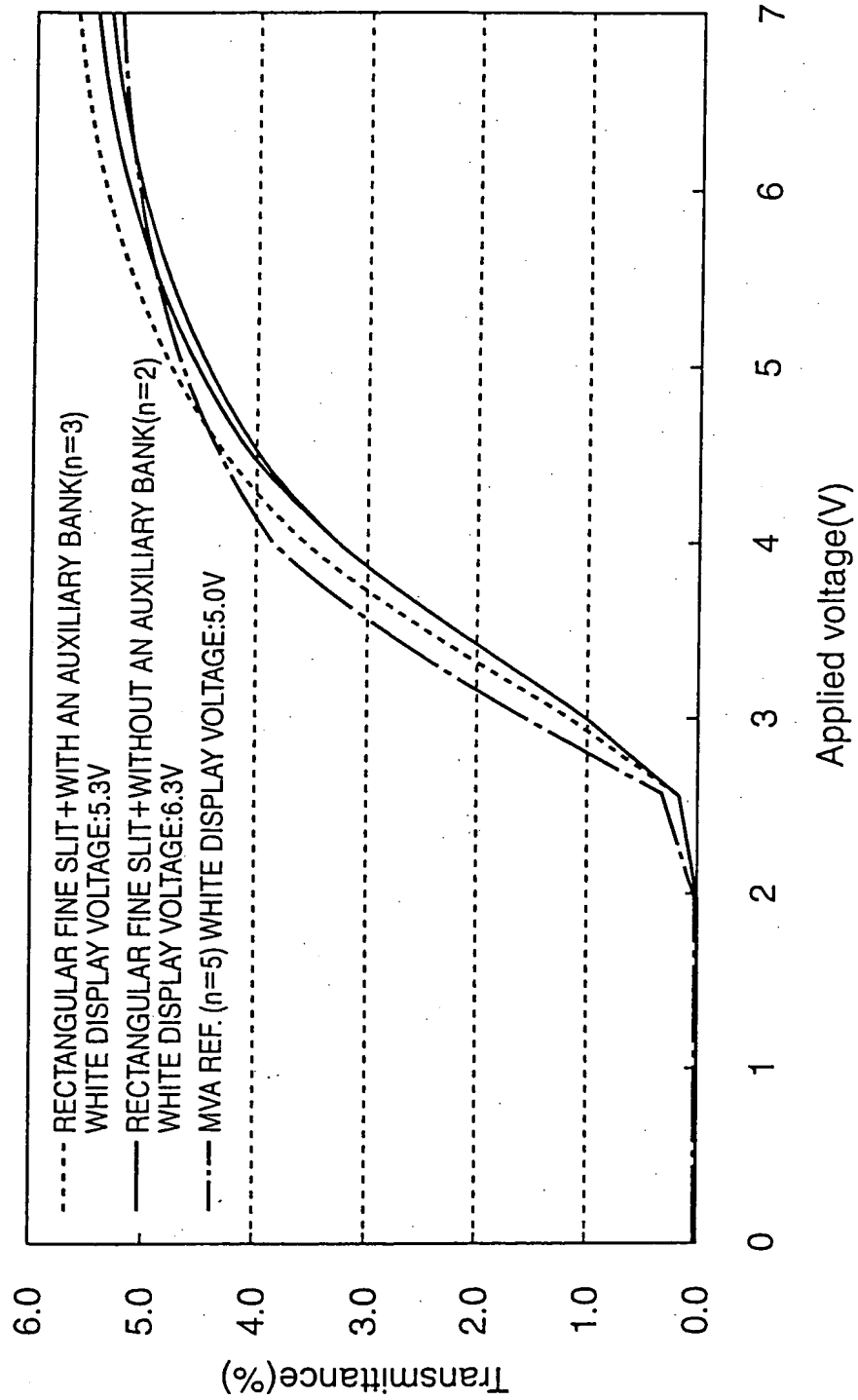
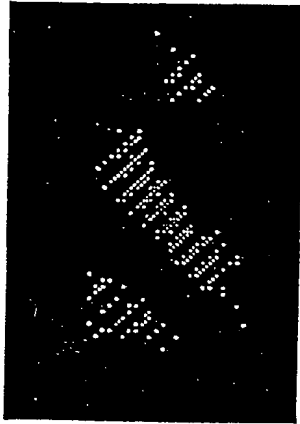
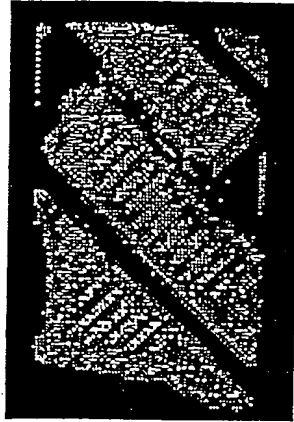


FIG. 6A



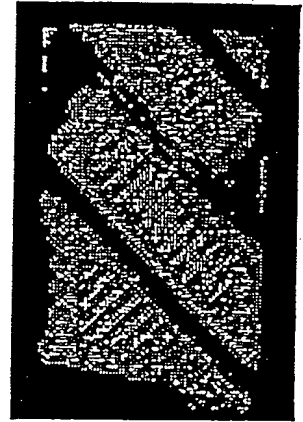
APPLIED
VOLTAGE : 3V

FIG. 6B



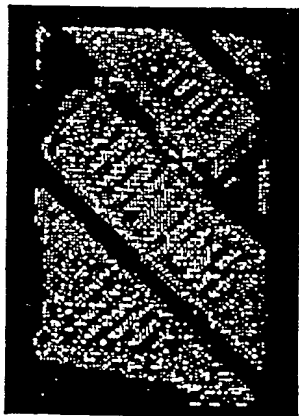
APPLIED
VOLTAGE : 4V

FIG. 6C



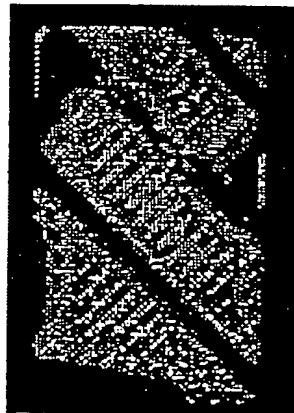
APPLIED
VOLTAGE : 5V

FIG. 6D



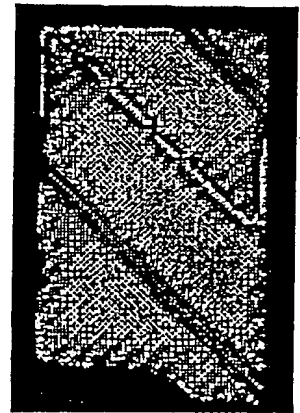
APPLIED
VOLTAGE : 6V

FIG. 6E



APPLIED
VOLTAGE : 7V

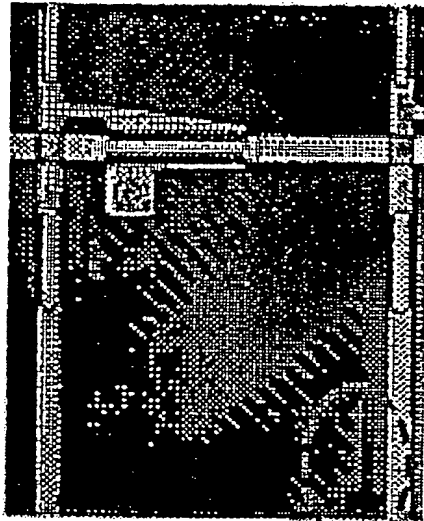
FIG. 6F



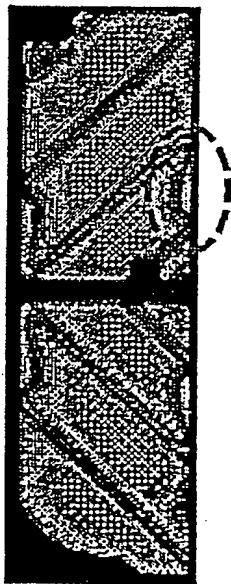
APPLIED
VOLTAGE : 8V

FIG. 7

FINE SLIT(SHALLOW CUT)

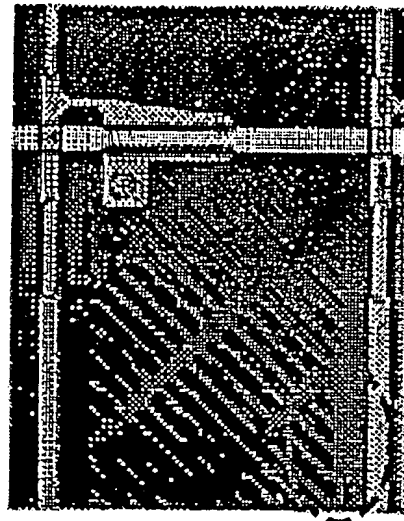


PIXEL ELECTRODE
PATTERN

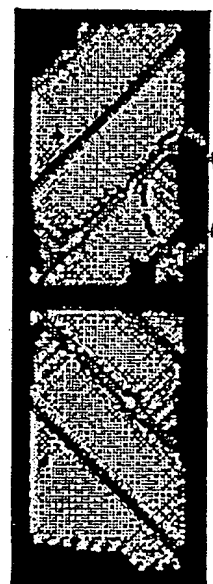


ORIENTATION STATE

FINE SLIT(DEEP CUT)



PIXEL ELECTRODE
PATTERN



ORIENTATION STATE

FIG. 8

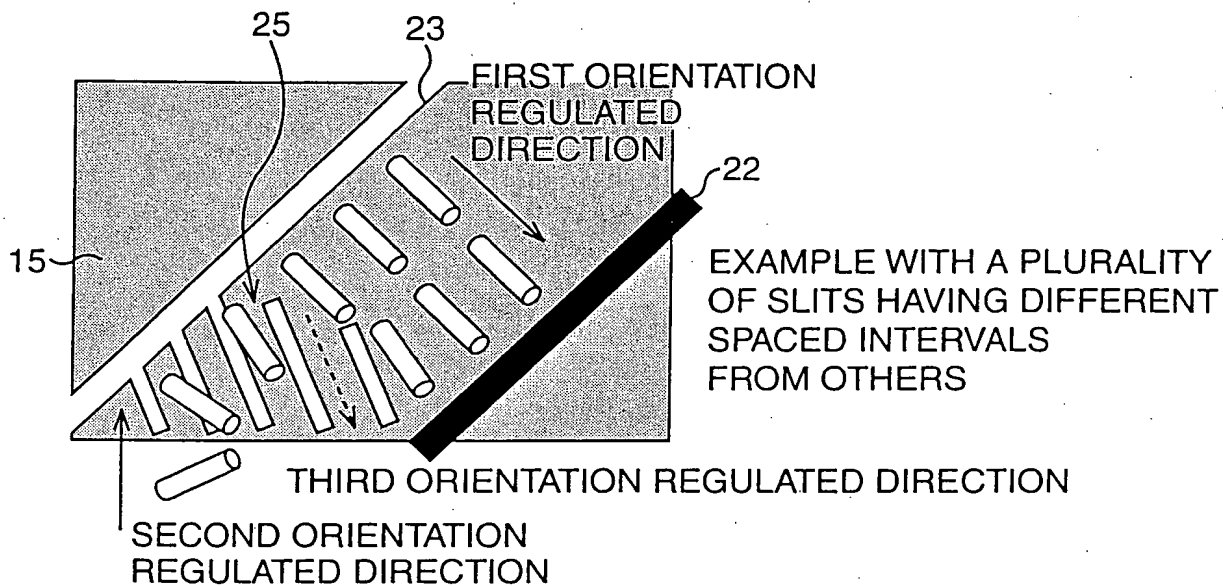


FIG. 9

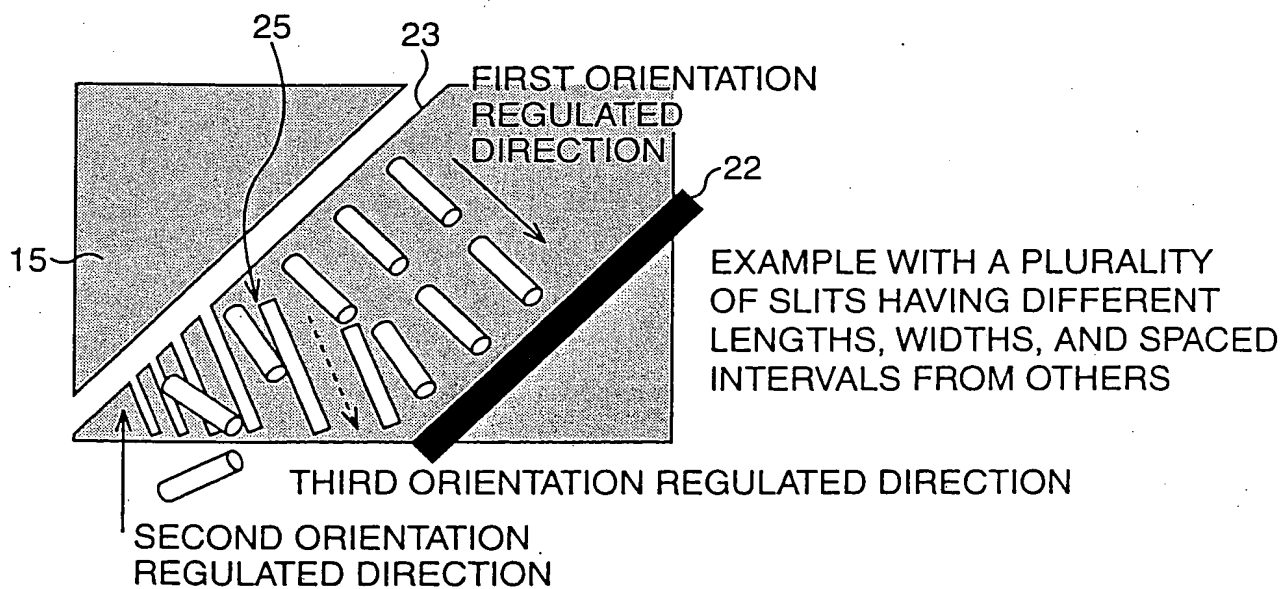


FIG. 10

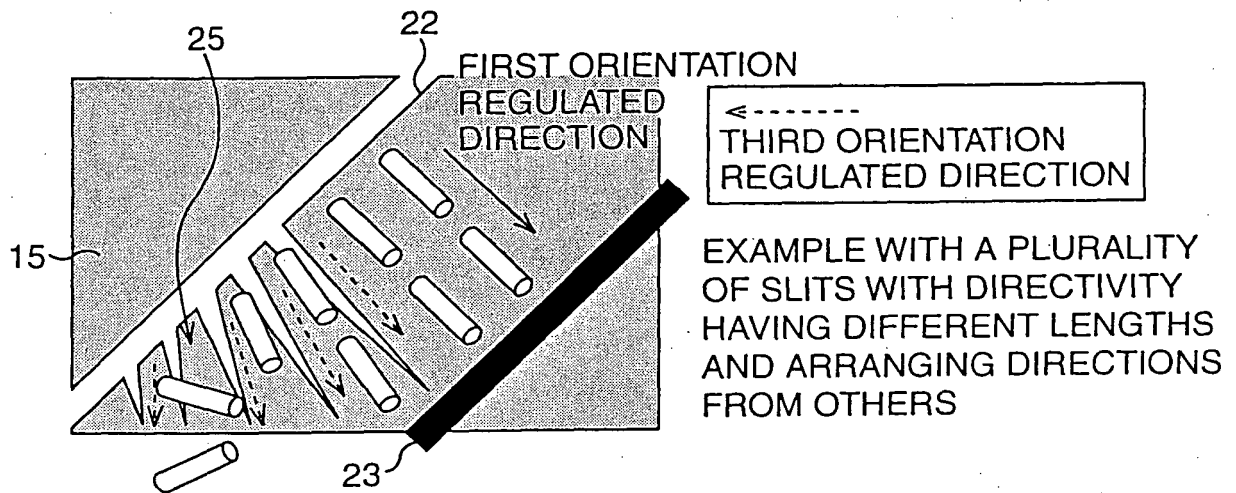


FIG. 11

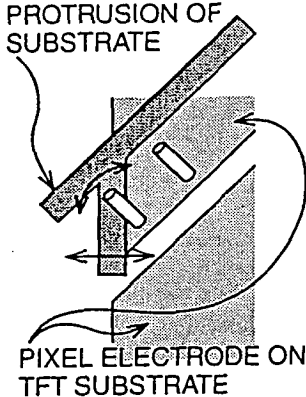
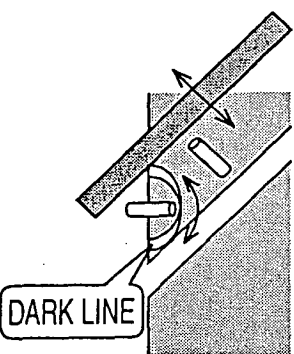
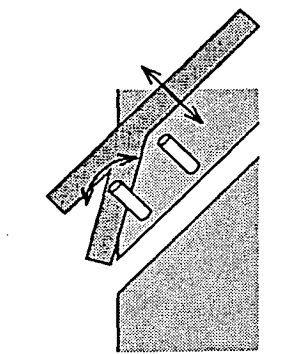
	①WITH AN AUXILIARY BANK	②WITHOUT AN AUXILIARY BANK	③CHANGE THE DIRECTION OF AN AUXILIARY BANK
STRUCTURE	 <p>PROTRUSION OF SUBSTRATE</p> <p>PIXEL ELECTRODE ON TFT SUBSTRATE</p>	 <p>DARK LINE</p>	
TRANSMITTANCE	1	0.9	0.95
MISALIGNMENT MARGIN	x	o	Δ
FEATURES	<ul style="list-style-type: none"> • LIQUID CRYSTAL ORIENTATION OF A PIXEL EDGE CHANGES GREATLY DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING (A LARGE DEGREE OF TRANSMITTANCE CHANGE) • NO DARK LINE ON A PIXEL EDGE (A LARGE DEGREE OF IMPROVEMENT IN TRANSMITTANCE) 	<ul style="list-style-type: none"> • LIQUID CRYSTAL ORIENTATION OF A PIXEL EDGE CHANGES DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING (TO A SMALL DEGREE) • OCCURRENCE OF ONE DARK LINE ON A PIXEL EDGE (A LARGE DEGREE OF DECREASE IN TRANSMITTANCE) 	<ul style="list-style-type: none"> • LIQUID CRYSTAL ORIENTATION OF A PIXEL EDGE CHANGES DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING • NO DARK LINE ON A PIXEL EDGE

FIG. 12

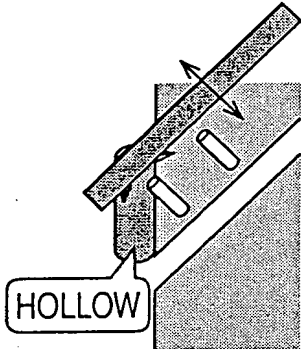
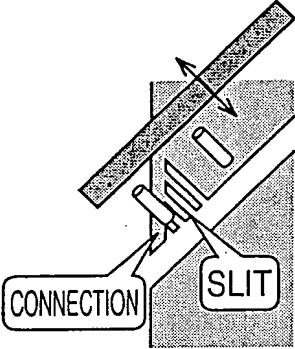
	④HOLLOW IN A PIXEL EDGE	⑤FINE SLITS +CONNECTION AT THE END
STRUCTURE		
TRANSMITTANCE	0.92	0.95
MISALIGNMENT MARGIN	○	◎
FEATURES	<ul style="list-style-type: none"> • LIQUID CRYSTAL ORIENTATION OF A PIXEL EDGE CHANGES DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING (WITH A MARGIN) • NO DARK LINE ON A PIXEL EDGE 	<ul style="list-style-type: none"> • LIQUID CRYSTAL ORIENTATION DOES NOT CHANGE EASILY DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING (WITH THE LARGEST MARGIN) • NO DARK LINE AT A PIXEL EDGE (TRANSMITTANCE UNDER IMPROVEMENT) • TRANSMITTANCE IS IMPROVED GREATLY AT A DRIVING VOLTAGE OF 6V OR HIGHER (EQUAL TO ①)

FIG. 13

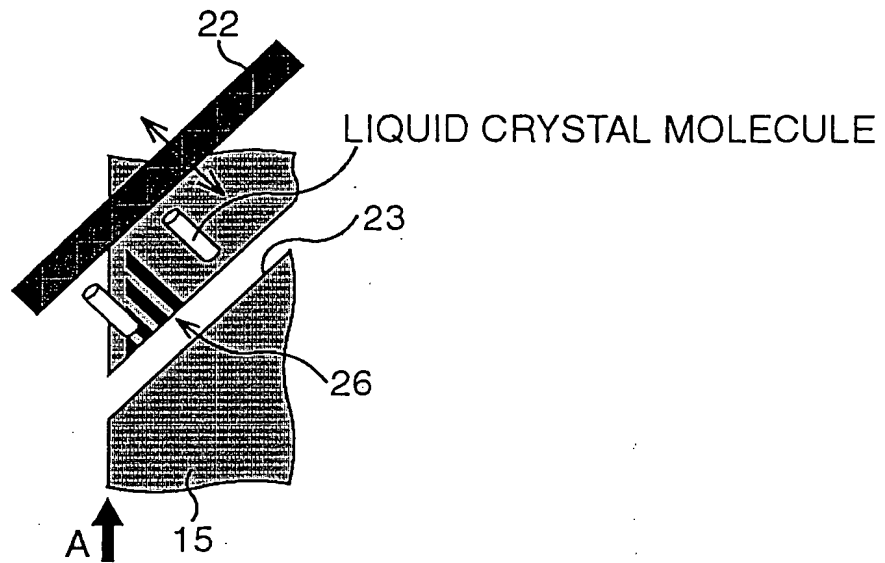


FIG. 14A

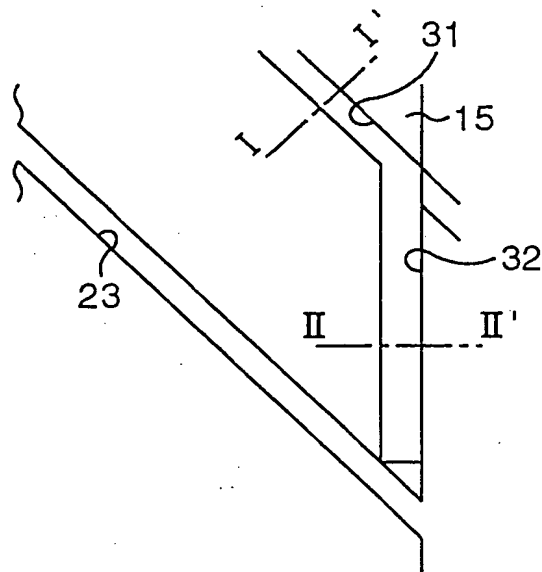


FIG. 14B

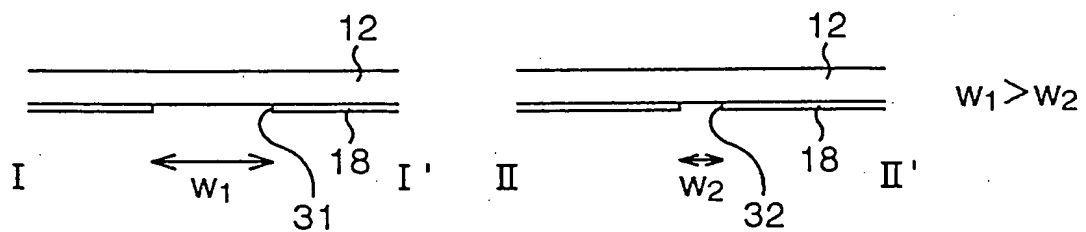


FIG. 15A

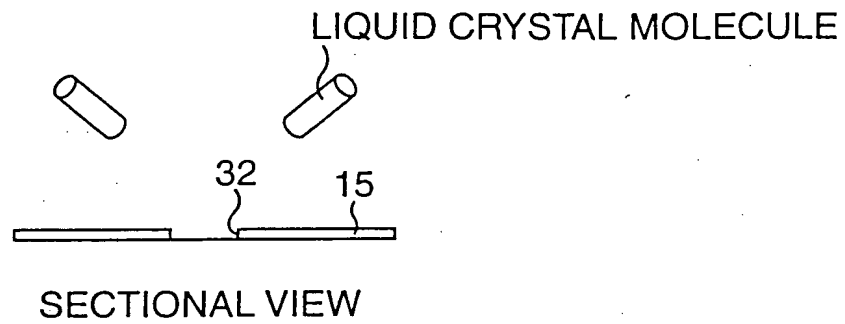


FIG. 15B

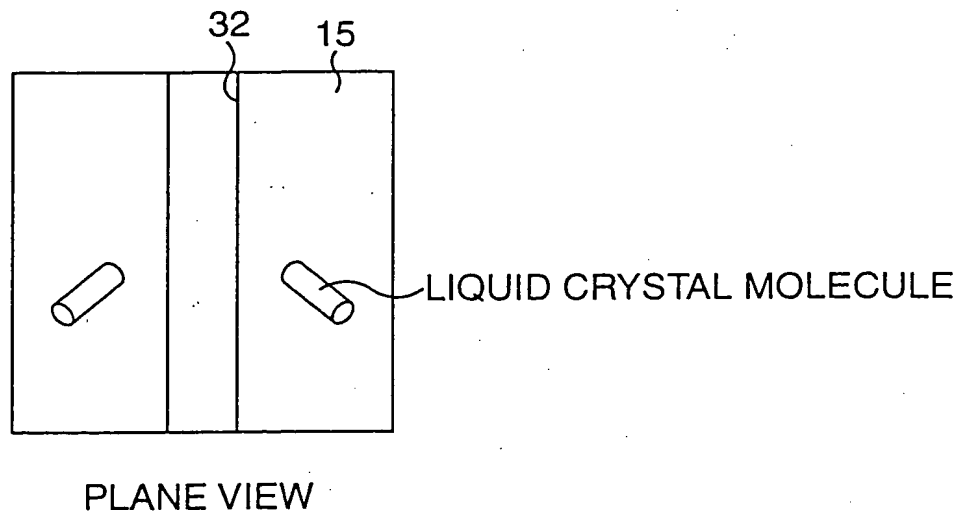


FIG. 16A

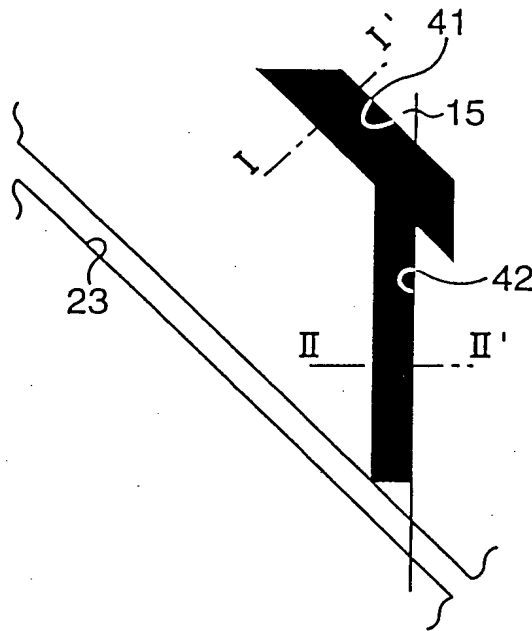


FIG. 16B

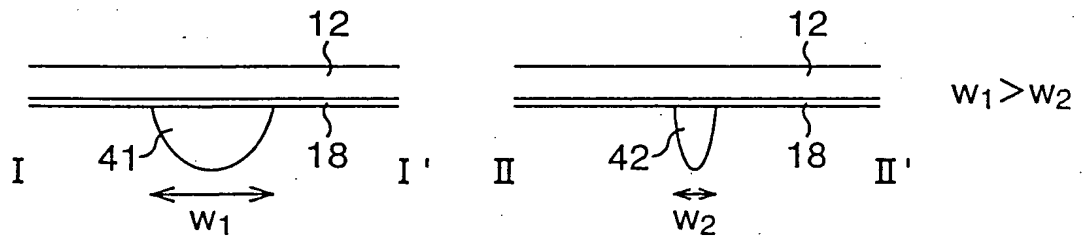


FIG. 17A

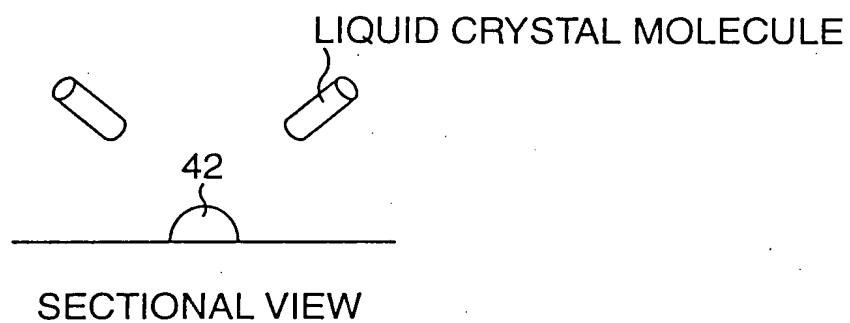


FIG. 17B

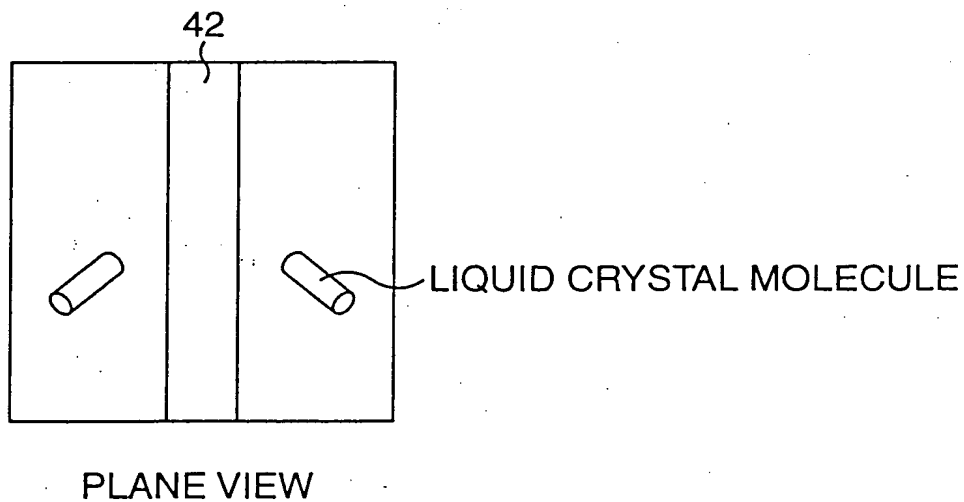
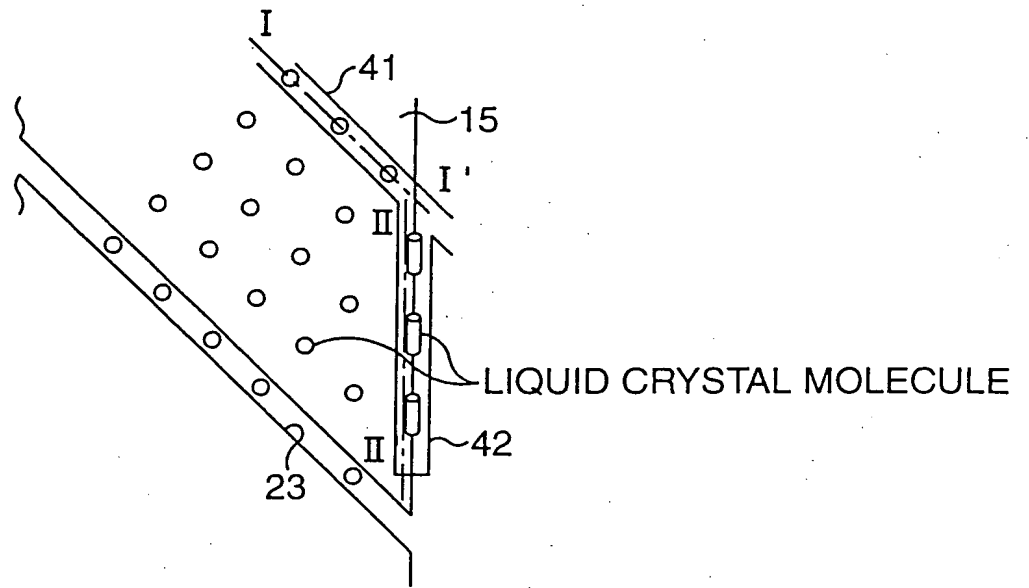
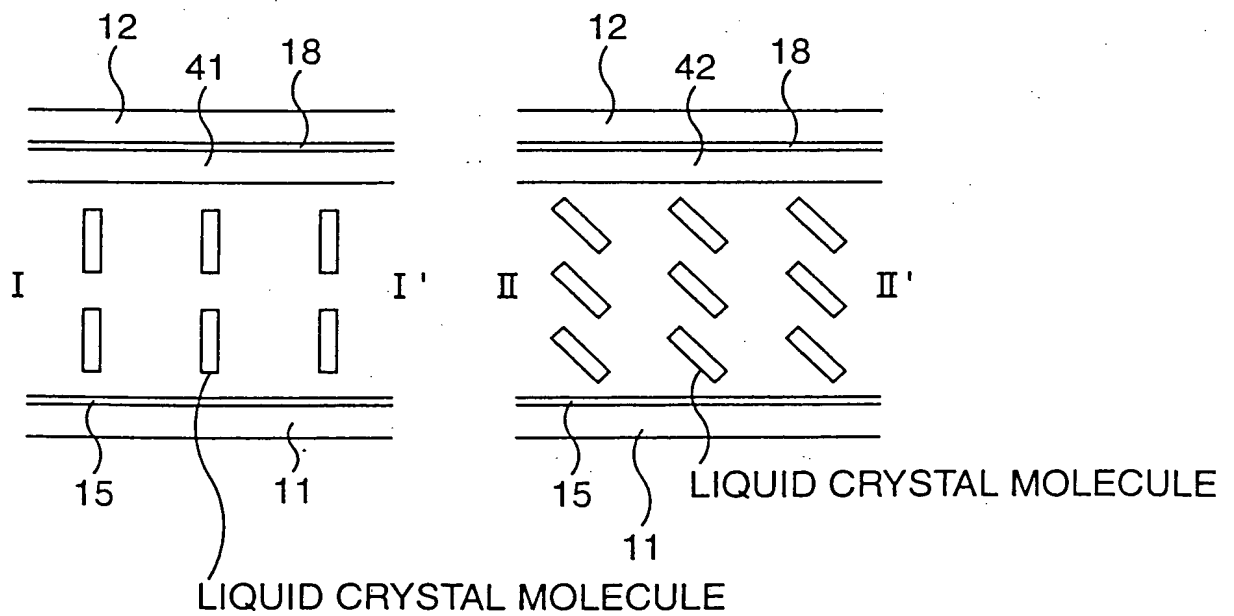


FIG. 18A



PLANE VIEW

FIG. 18B



SECTIONAL VIEW

FIG. 19A

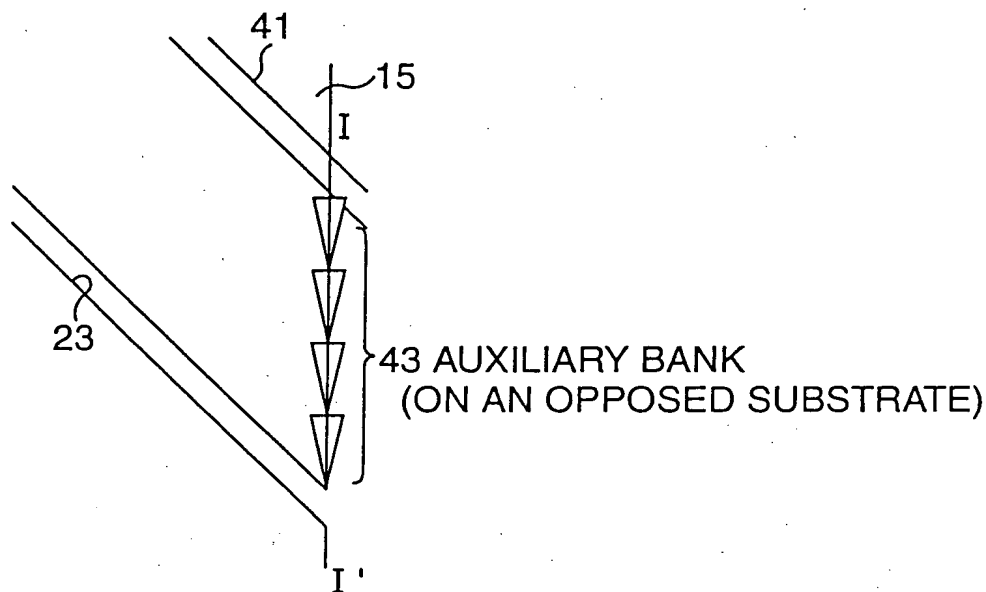
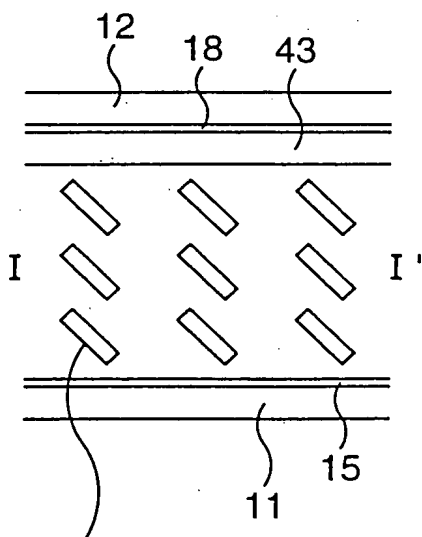
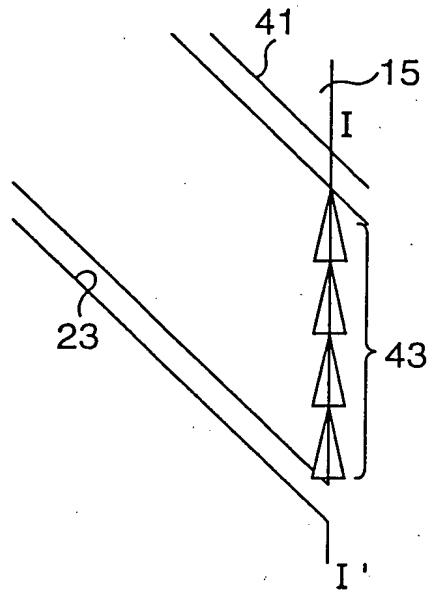


FIG. 19B



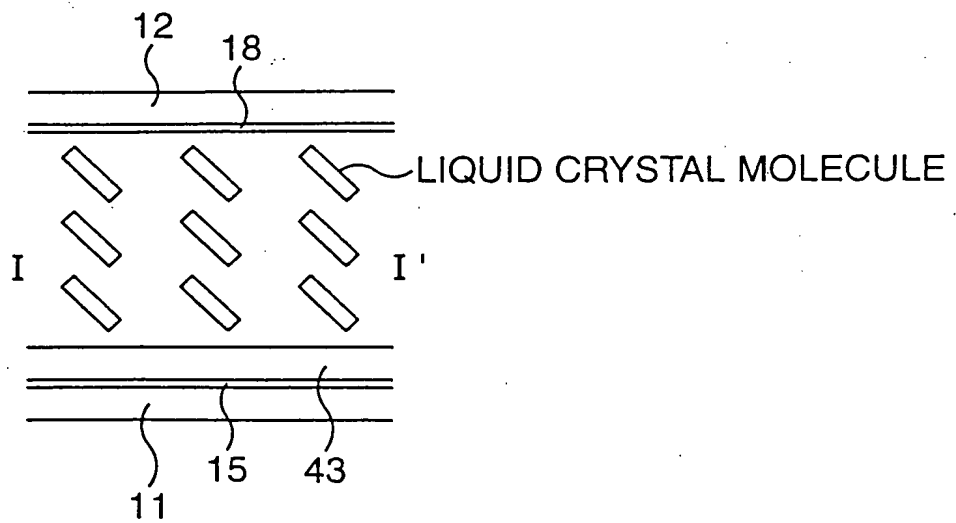
SECTIONAL VIEW

FIG. 20A



PLANE VIEW

FIG. 20B



SECTIONAL VIEW

FIG. 21A

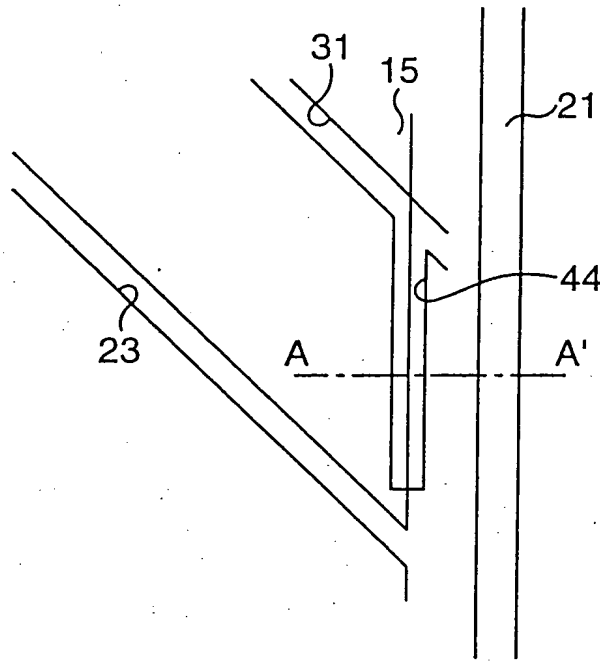


FIG. 21B

A REGION WITH NO ELECTRODE
ON BOTH OF THE SUBSTRATES

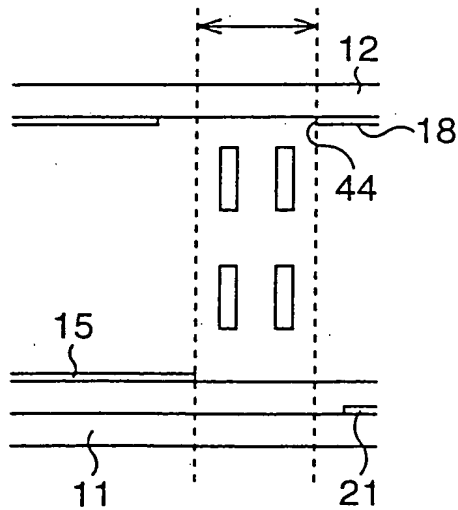
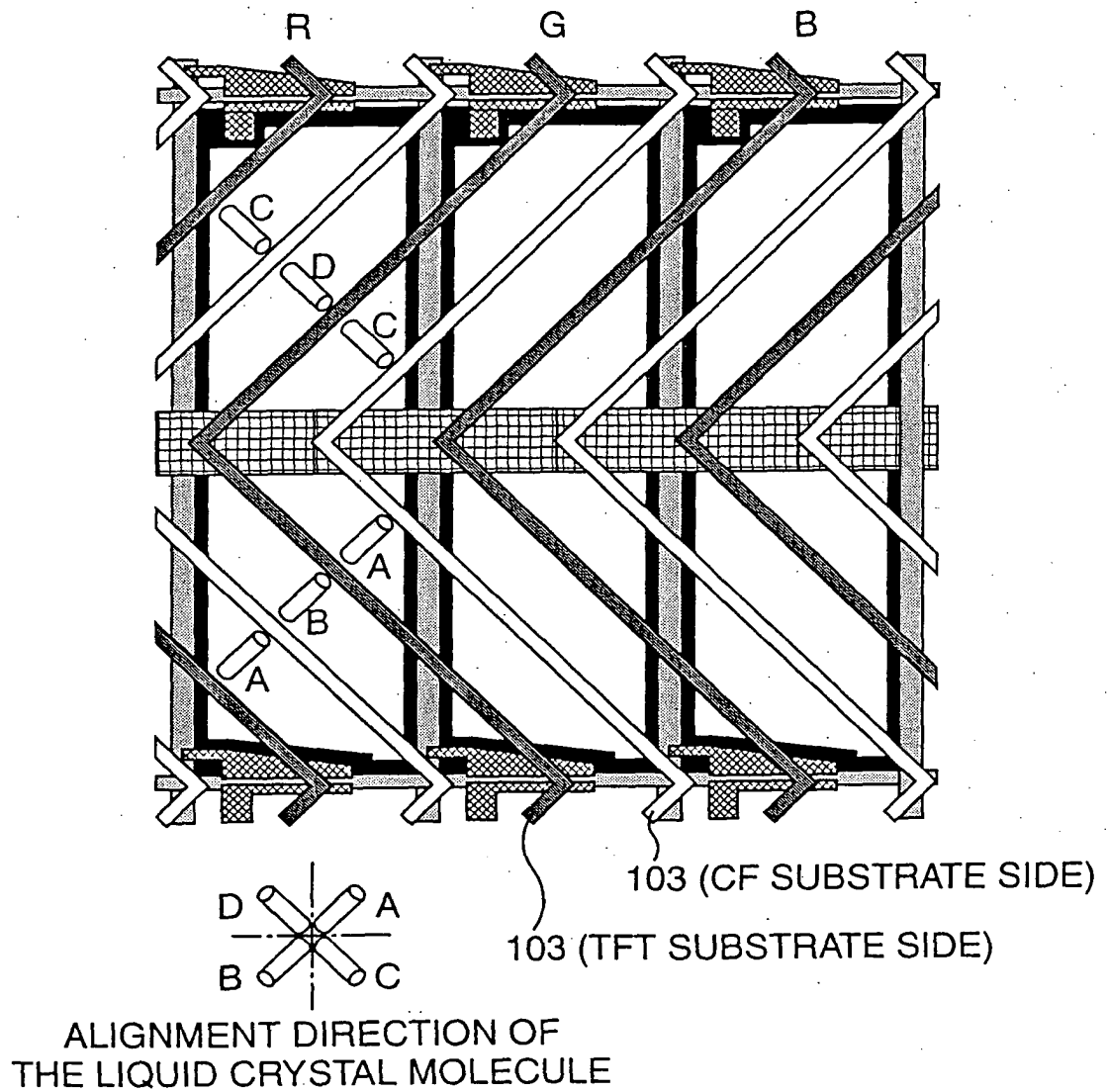


FIG. 22



PIXEL STRUCTURE OF AN MVA LIQUID CRYSTAL DISPLAY (ONE PIXEL)

FIG. 23A

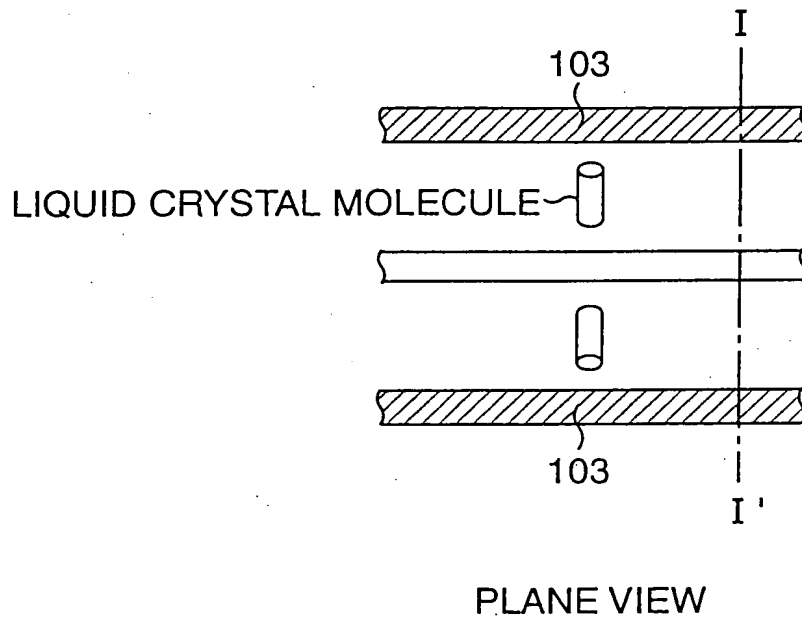


FIG. 23B

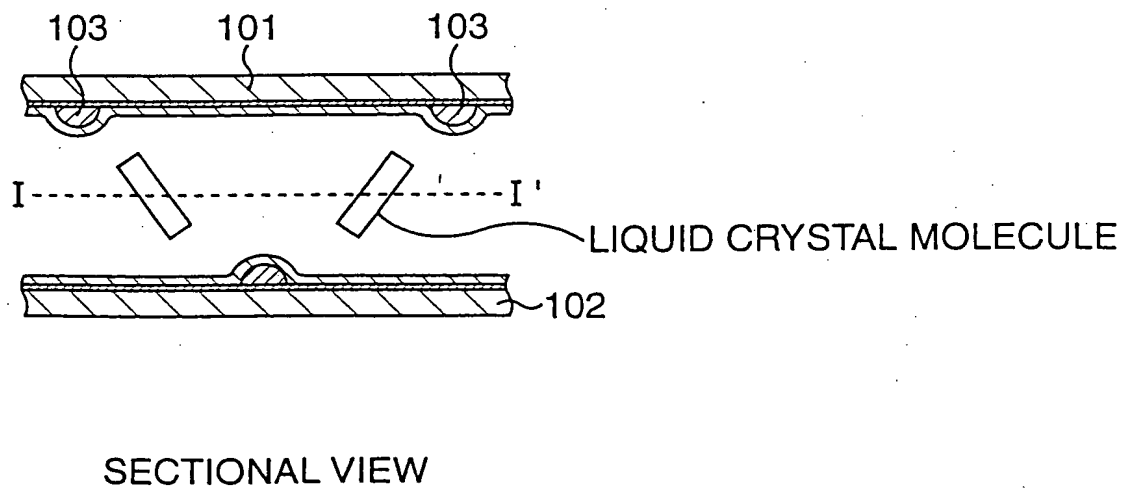


FIG. 24A

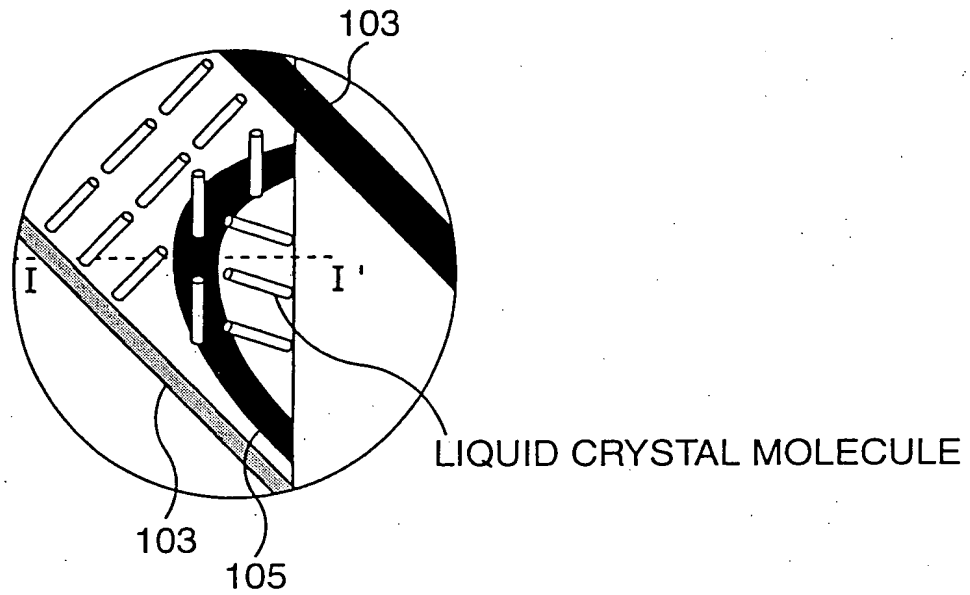


FIG. 24B

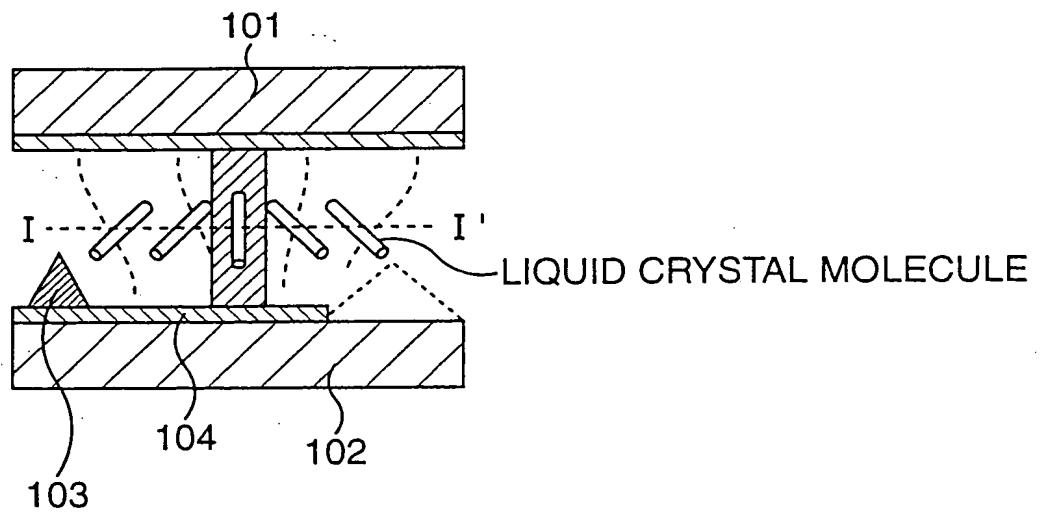
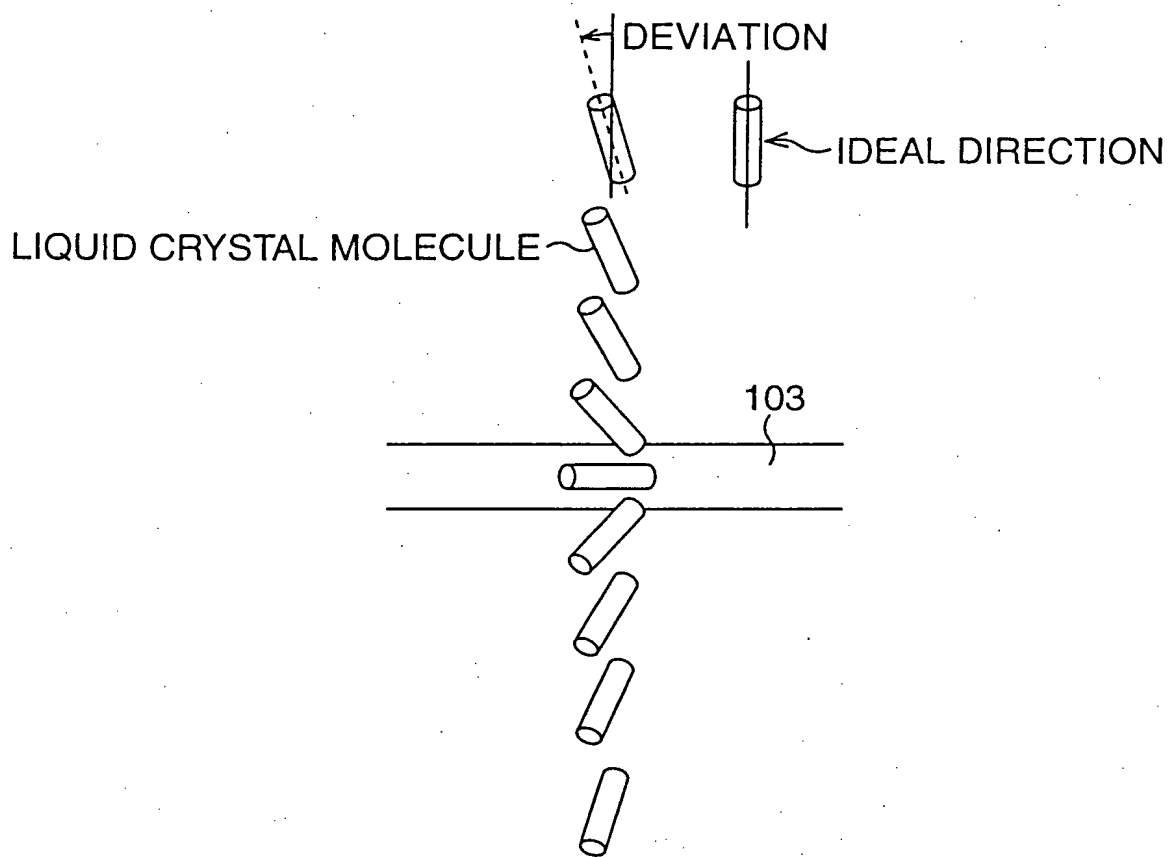
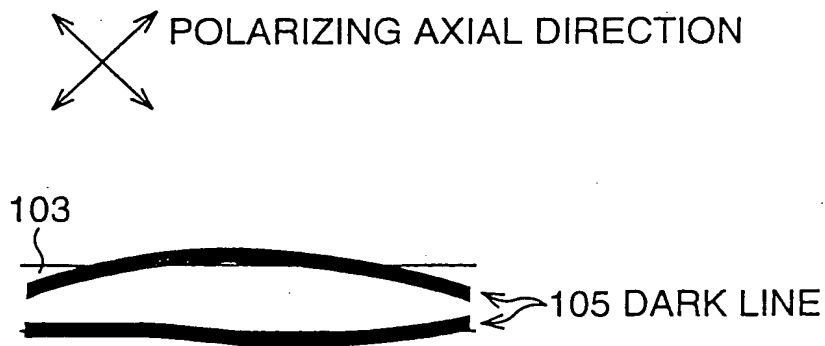


FIG. 25A



ALIGNMENT DIRECTION OF THE LIQUID CRYSTAL MOLECULE

FIG. 25B



OPTICAL APPEARANCE

FIG. 26A

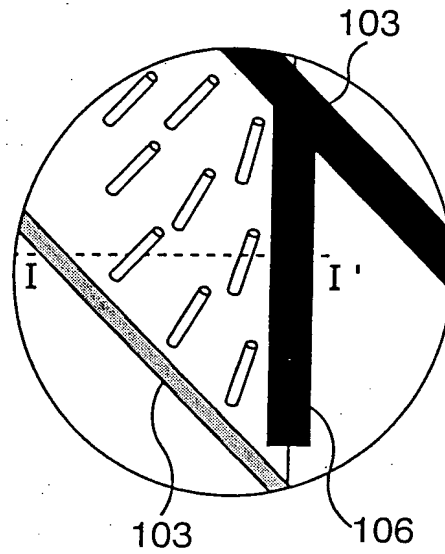


FIG. 26B

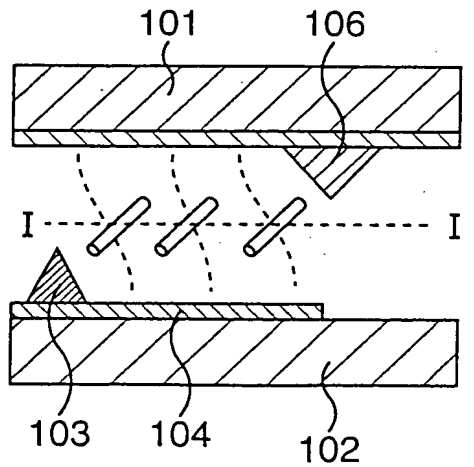


FIG. 27A

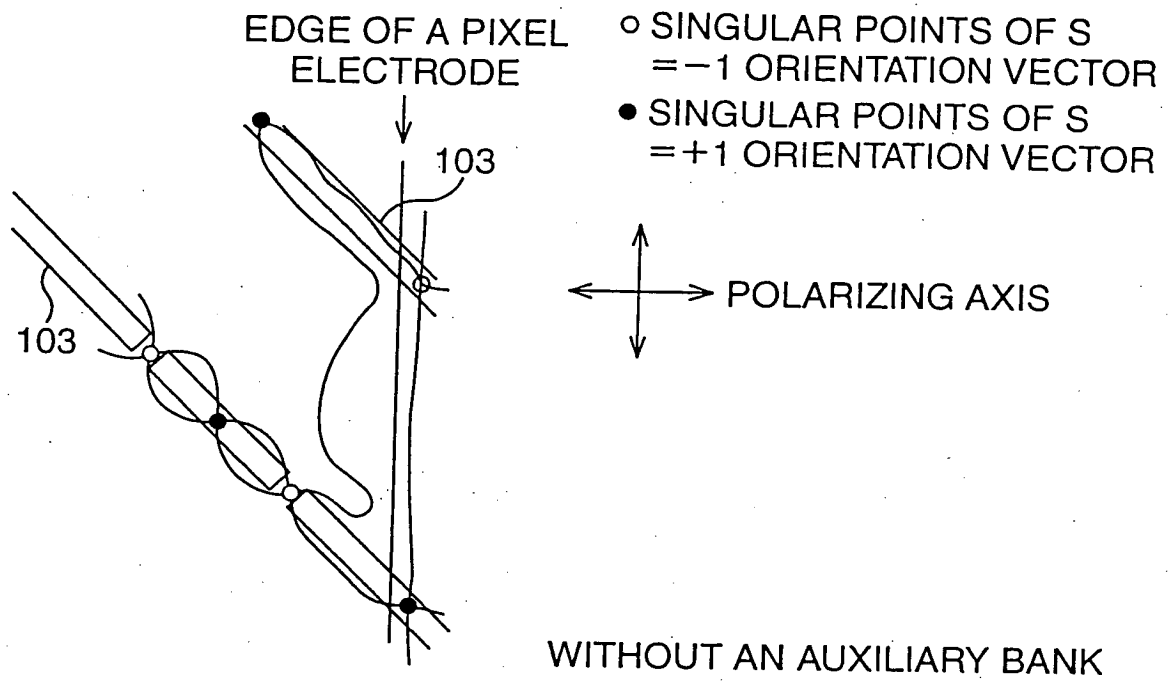


FIG. 27B

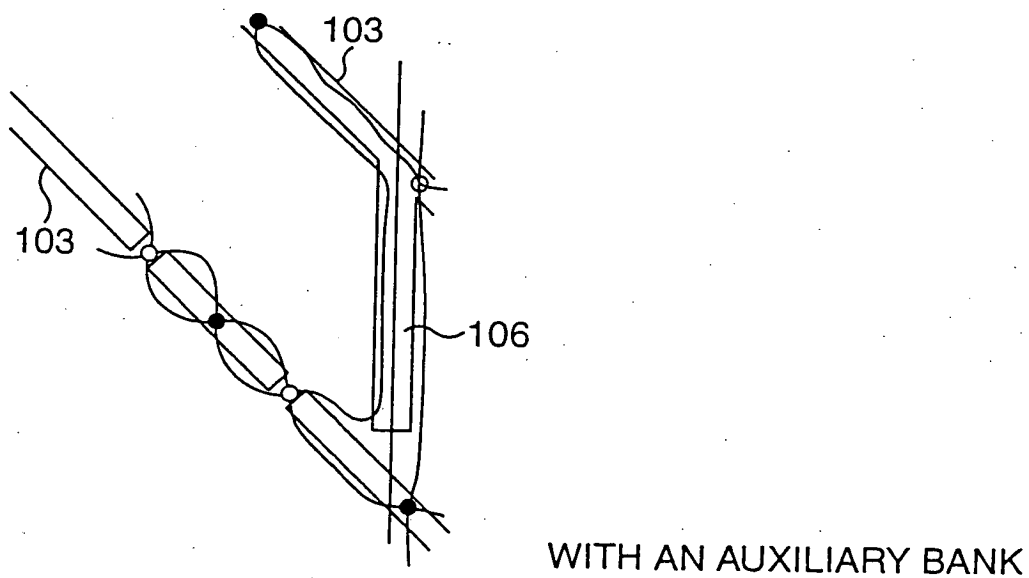


FIG. 28

STRENGTH OF
SINGULAR POINTS OF
ORIENTATION VECTOR

● $S=+1$

○ $S=-1$

OBSERVED WITH A TFT
SUBSTRATE ON
A LOWER SIDE AND
A CF SUBSTRATE ON
AN UPPER SIDE

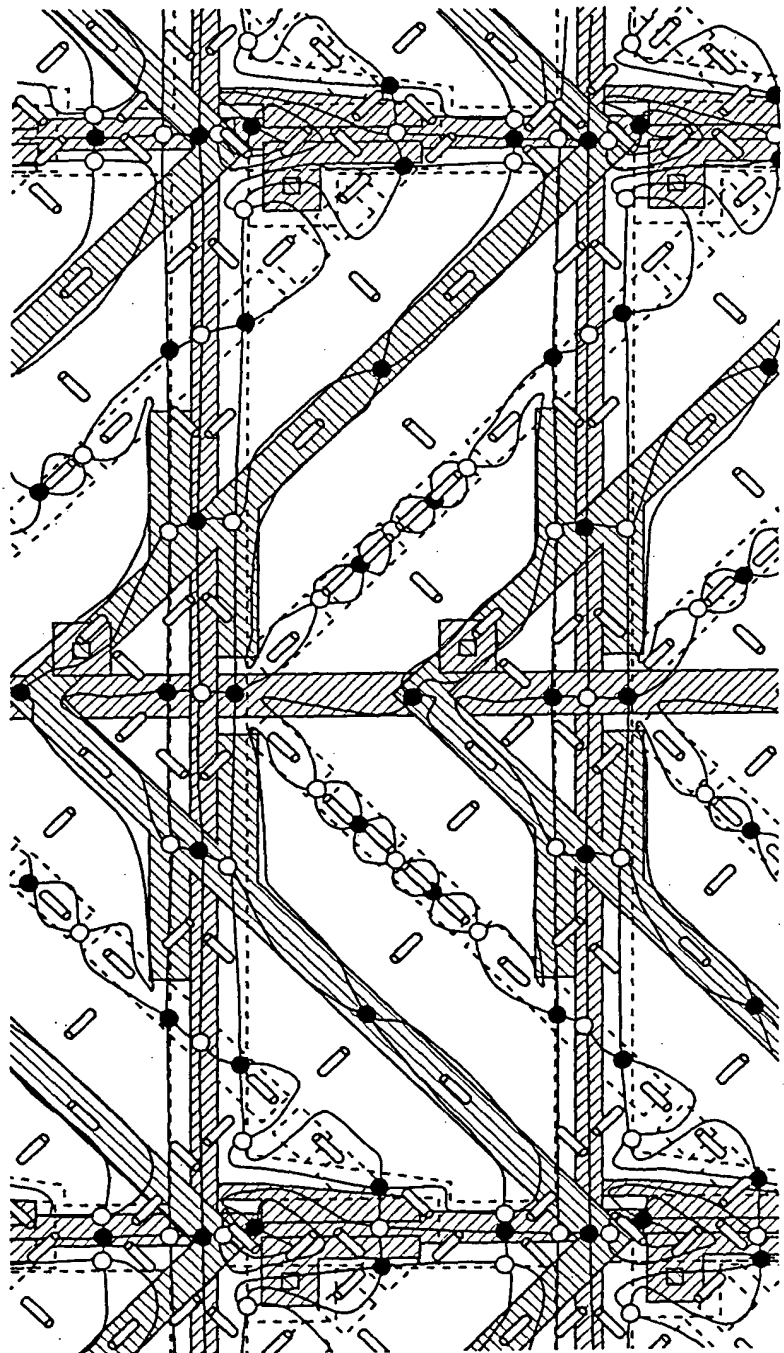
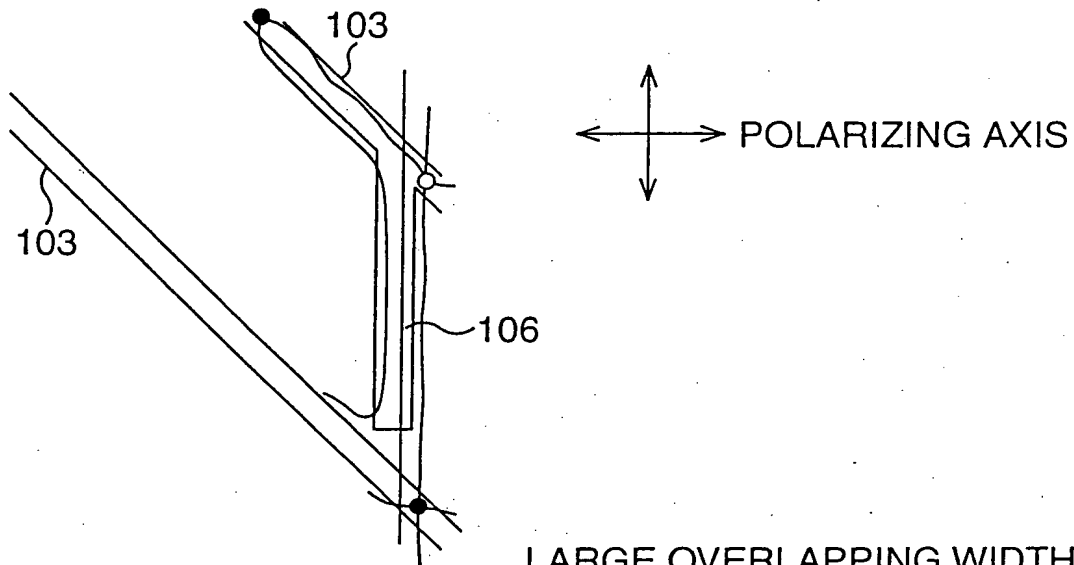
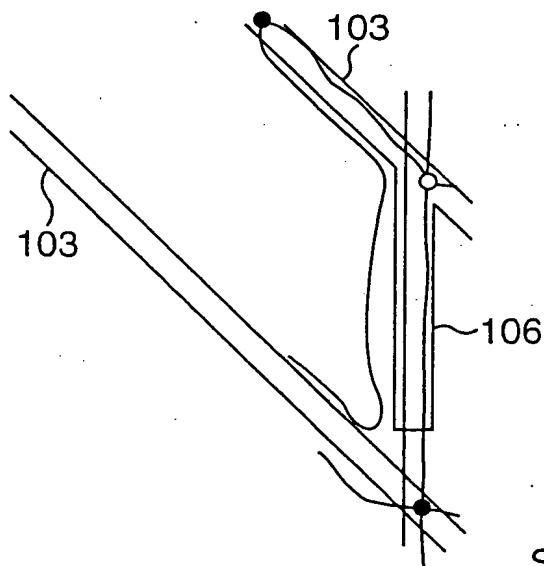


FIG. 29A



LARGE OVERLAPPING WIDTH OF
AN AUXILIARY PROTRUSION AND
A PIXEL EDGE

FIG. 29B



SMALL OVERLAPPING WIDTH OF
AN AUXILIARY PROTRUSION AND
A PIXEL EDGE

FIG. 30

